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THE OFFICE OF MYCOLOGY AND DISEASE SURVEY

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BUREAU OF
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OFFICE NOTES

In 1927 the Plant Disease Survey cooperated with the Iowa State College in a plant disease survey of Iowa. A part of the results of this survey was published as a supplement to The Plant Disease Reporter (Suppl. 58: 1-64. May 1928). The remainder now becomes available through the publication of a list of "Fungi of Iowa Parasitic on Plants" by J. C. Gilman and W. A. Archer. The following notice concerning this list has recently been distributed.

"We wish to call your attention to the recently published host index for Iowa parasitic fungi in the Iowa State College Journal of Science (Gilman, J. C., and W. A. Archer, "The Fungi of Iowa Parasitic on Plants," I. S. C. Jour. of Sci. 3: 299-502. 1929). This list contains 938 fungi on 1,019 host plants and in addition citations are given to an adequate description and discussion of each fungus listed. In the case of the Ustilaginales and Uredinales page reference to the fungus in North American Flora is included, which makes these descriptions much more readily available.

"Because of the size of the list and the expense of printing, the authors are unable to distribute complimentary copies of this paper; they have, therefore, arranged with the business management of the Iowa State College Journal of Science to print a limited number of reprints in covers for those who desire them, to be sold by the Journal at one dollar a copy. Anyone desirous of receiving a copy of this paper can thus procure it by applying to Dr. P. E. Brown, Business Manager, Iowa State College Journal of Science, Ames, Iowa."

J. C. Gilman
W. A. Archer

RELATIVE IMPORTANCE OF IDAHO DISEASES ACCORDING TO COUNTY AGENTS

In connection with the preparation of the annual survey report for Idaho, collaborator C. W. Hungerford asked the county agents to answer two questions.

(1) What plant diseases have been most destructive and important this year in your county?

(2) What unusual or especially severe diseases have occurred this year in your county?

The replies were as follows:

Question (1) - Eight county agents listed bunt or stinking smut of wheat as one of the most important; two listed bean mosaic; three, chlorosis on fruit trees; two, Rhizoctonia of potatoes; three, potato mosaic; one, potato spindle tuber; two, curly top of beets; one, bacterial wilt of alfalfa; one, corn smut; one, covered smut of barley; one, clover mildew; one, oat smuts; and one California peach blight.

Question (2) - Only a few answers were received to this question. Three agents stated that bunt in wheat was especially severe. Two stated that chlorosis of fruit trees was especially severe, and one stated that bacterial wilt of alfalfa was especially severe.

DISEASES OF COTTON

VERTICILLIUM HADROMYCOSIS (WILT) OF COTTON IN CALIFORNIA

By Michael Shapovalov and B. A. Rudolph

Verticillium hadromycosis or wilt of cotton became established in the United States a number of years ago, but its occurrence in California has not been reported, heretofore. Carpenter found this disease 15 years ago on plants grown in Virginia. In recent years it has been reported by Sherbakoff from Tennessee and Young from Arkansas.

In California so far the disease has been observed in southern San Joaquin Valley only. The first diseased plants were found in September, 1927, in a few spots of one field near Wasco. Prior to 1923 this field was planted to alfalfa and barley. From 1923 to 1926 it was in cotton, with watermelons interplanted in 1925. In the spring of 1927 the owner planted potatoes, but as the latter were frosted and otherwise did not look promising to him, he plowed them under and put in cotton once more. Since wilt was noticed here for the first time after this potato planting, it seems quite probable that the Verticillium fungus was introduced into the soil with the seed potatoes in the spring of 1927.

Many growers plant spring potatoes in that general section, using either California or Oregon seed, and the subsequent spread of the disease may likewise be found connected with the potato culture. Several growers in that vicinity observed a small amount of wilt in their fields in 1928, but considered the damage as insignificant. This year, however, the infection has developed to menacing proportions. In one instance the number of the affected plants had reached 50 per cent by the end of August. Still later in the season, as the plants became

more mature, the disease appeared to be checked, and in some cases the affected plant could be recognized only by a pronounced discoloration of the interior tissues.

The interior discoloration precedes the actual invasion of the tissues by the wilt fungus, since cultures made from these discolored portions very often give no fungus growth. The culture characteristics of the Verticillium obtained from wilted cotton stems, in general agree with those of the strain repeatedly isolated by us from tomatoes and deciduous fruit trees in California, and which has been identified as a true sclerotial form of Verticillium albo-atrum Reinke & Berth. Occasionallyslight morphological variations have been observed in the strains of the fungus isolated from widely unrelated host plants in California. Usually such variations disappear, however, when the fungus has been grown in culture over a long period. Cultures of Verticillium freshly isolated from cotton stems show minor variations but which, in all probability, do not entitle the strain to specific rank. Further studies of the variational forms of the fungus are pending. (Dec. 4)

DISEASES OF CEREAL AND FORAGE CROPS

ROOT ROT OF SWEET CLOVER IN KANSAS

Several fields near Seneca, Kansas, where entire crop was killed out. The condition was a necrosis of crown developing so fast as to cause sudden wilting of stems. A 3-year old planting wiped out and farmer started plowing it up when field was visited. Planting of 1929 came up well then suddenly all wilted. Cause not determined. (O. H. Elmer)

DISEASES OF SUGAR CANE

OCCURRENCE OF SUGAR CANE DISEASES IN LOUISIANA IN 1929

Mosaic. Less than usual. General on susceptible varieties. Varieties very resistant: P.O.J. 213; CO 281; CP. 807. Resistant: P.O.J. 36; CP. 177; P.O.J. 234. Very susceptible: Purple; D-74; Striped. Larger amounts of very resistant varieties being grown have reduced the amount of the disease.

Red stripe (Bacterium sp.) Varieties resistant: P.O.J. 213, 234, 826; CO 281; CP. 130, 177, 807. Susceptible: P.O.J. 36, 2727; M-36; D-74; SC 12/4.

Maroon stripe, top rot (Bacterium sp.) No varieties immune. Resistant: M-36; C.P. 130, 177, 807; CO 281. Susceptible: P.O.J. 36, 213, 234, 826, 2727; SC 12/4; Purple; D-74.

Brown stripe (Helminthosporium stenospilum). Very resistant: P.O.J. 213; CO 281; CP. 807, 177. Susceptible: CP. 130; P.O.J. 36. Very susceptible: Purple; D-74. The disease was much less common than usual.

Root rot (Pythium sp. and other factors). Resistant: P.O.J. 213, 234, 36; CO 281; C.P. 177, 807. Very susceptible: Purple; D-74. Less serious this year because most of the old varieties have about been replaced with the P.O.J. varieties which are resistant.

Gall-multiple buds (undet.) Susceptible: P.O.J. 234, 36, 979.

Pokkah bong (undet.) No varieties immune. Resistant: P.O.J. 213; CO 281; CP 807. Very susceptible: P.O.J. 234; Purple; Striped; CP 177.

(E. C. Tims)

DISEASES OF TOBACCO

WISCONSIN TOBACCO DISEASES, 1929

The following report of the occurrence of tobacco diseases in Wisconsin is based on the annual report recently sent in by Dr. James Johnson.

Damping-off (Pythium and Rhizoctonia). About the same as usual. Occurrences were scattered generally over the tobacco area. Only minor and occasional damage resulted. The disease is controlled by soil sterilization which is now generally used.

Wildfire (Bacterium tabacum). More than last year but less than the averag year. Relatively slight in importance. An estimated reduction in grade of about 2 per cent. Known to occur on 28 farms. Heavy infection occurred in some seed beds but these were destroyed. No serious field damage.

Angular leaf spot (Bacterium angulatum). More than last year and average year. Probably caused 8 per cent reduction in yield. First noticed in June in Dane County. Moist weather favored disease.

Leaf spot (Fusarium affine). Not observed in 1929.

Mosaic. Less than last year but about the same as normal. Estimated reduction in yield 2 per cent and estimated loss in grade 5 per cent. Some fields showed 100 per cent infection.

DISEASES OF VEGETABLE CROPS

SOME REPORTS ON POTATO LATE BLIGHT (PHYTOPHTHORA INFESTANS) IN 1929

Georgia: This caused considerable loss of leaf surface on potatoes in the mountain valleys. (J. H. Miller)

Louisiana: First occurrence in several years; observed April 30 at Baton Rouge. (E. C. Tims)

Minnesota (1928 crop): Out of four car loads seed shipped to Topeka from Minnesota in February 1929, over 300 sacks culled out that were infected with late blight rot. (O. H. Elmer)

POTATO DISEASES IN MICHIGAN IN 1929

Season dry in many sections of state and temperatures higher than normal. Common scab (Actinomyces scabies) of more than usual prevalence on certified seed potatoes in 1929 in certain sections of state. Bin inspections show 20.0 to 50.0 per cent tuber infection in many lots of potatoes grown in Montcalm and Oceana Counties. Bin inspections of certified potatoes show as much as 30 per cent of tubers of some lots bearing Rhizoctonia sclerotia. Fusarium wilt (Fusarium oxysporum) especially prevalent in southern part of state where weather conditions were most adverse to potato growth. Black leg (Bacillus atrosepticus) prevalent in many certified potato seed stocks. Fields planted from certain lots showed as much as 6.5 per cent of this disease. Symptoms of mosaic masked because of unfavorable weather conditions. Certified seed stocks exceptionally free from leaf roll. Maximum amount reported 0.5 per cent. Few cases of witches' broom observed. Few cases of yellow dwarf reported. Maximum amount of giant hill reported in certified fields - 0.25 per cent. Symptoms of new disease somewhat like Richard's Psyllid yellows - no psyllids observed however. Tarnished plant bug (Lygus pratensis) appears associated with trouble (not proven). One and five-tenths per cent maximum reported in certified fields. Six per cent found in single tuber clones of virus-free stock grown under isolation at Agricultural Experiment Station.

(J. E. Kotila)

BEAN DISEASES IN MICHIGAN AND CALIFORNIA IN 1929

MICHIGAN

Mosaic (virus) More than usual; total loss 1 per cent. Robust very resistant, Stringless Refugee very susceptible. Very serious in canning crop, especially Stringless Refugee variety. Disease spread very rapidly in July. Not important in white bean crop.

Anthracnose (Colletotrichum lindemuthianum) Much less than usual. Very dry season, unfavorable for anthracnose and the disease was not important in snap or pea bean crop.

Halo blight (Bacterium medicaginis phaseolicola) More than usual, loss 5 per cent. Red Kidney and Refugee very susceptible. This disease was especially serious in the Red Kidney beans. Has been increasing in importance for some time and is now found generally in the state.

Blight (Bacterium phaseoli) Loss, 1 to 2 per cent. Blight was generally less prevalent than usual. Pea bean crop seriously injured by drought.

Bacterial spot of lima bean (Bacterium vignae) Loss, 2 per cent. One 100-acre field of Henderson Bush badly damaged by spot. Seed origin unquestionable. Disease usually more serious on early plantings causing cotyledon rot.

(Ray Nelson)

CALIFORNIA

Wilt (Fusarium sp.) Found in upper Sacramento Valley on pink beans. Two to 3 per cent loss in one field. Others slight.

Root rot (Fusarium sp.) Dry root rot of bean very prevalent in principal bean growing areas. Probably most serious bean trouble in state. Some fields total loss. No variety appeared to be immune.

Root knot of lima bean (Caconema radicicola) Disease observed in two large fields of lima beans in Ventura County. Severe damage being done.

(J. B. Kendrick)

SOME REPORTS ON BEET DISEASES

CALIFORNIA

Downy mildew (Peronospora schachtii) Caused serious losses in seed beet production the past year. Many fields were a total loss. Disease present on sugar beets and garden beets, but greatest damage was reduction in yield of seed.

WASHINGTON

Mosaic (virus disease) Mount Vernon, Skagit County - all the planting, for seed appear to be 100 per cent infected with mosaic.
(L. K. Jones)

MISCELLANEOUS REPORTS ON DISEASES AND INJURIES OF VEGETABLES - 1929

Streak (virus) on tomato in California: Prevalent in Santa Clara, Salinas and Sacramento Valleys. Severe in some fields. Symptoms similar to streak; dying of tips. Considerable fruit spotting in some fields. (J. B. Kendrick)

Wilt (Bacillus tracheiphilus) of cucumber in Michigan: Very serious in pickling crop. More destructive this year than for several seasons. (Ray Nelson)

Yellows (virus) of lettuce in New Hampshire: About 50 per cent of plants allowed to seed affected. (O. Butler)

Yellows (Fusarium species) of celery in Michigan: Worst year for yellows since 1921. Susceptible varieties badly diseased in Kalamazoo area. M. S. C. Resistant strains stood up well beside commercial varieties that were destroyed. (Ray Nelson)

Lightning injury to peppers in Delaware: An area 20 feet in diameter killed outright all plants - complete wilting and blackening of plants. (Adams)

Rust (Uromyces betae) on swiss chard in California: Slight damage in truck gardens of Colma district near San Francisco. (L. D. Leach)

Rust (Puccinia hieracii) on witloof chicory in New York. Specimen collected by M. F. Barrus at Ithaca, November 16.

DISEASES OF FRUIT AND NUT CROPS

PECAN SCAB (FUSICLADIUM EFFUSUM) IN LOUISIANA

More than last year. About 0.5 per cent reduction in yield and 0.5 per cent loss in grade on account of this disease. All susceptible varieties suffer heavy losses in southern half of the state. Slight loss in northeastern portion of the state and no loss in northwestern portion with the exception of the Georgia and a few scattered trees of western varieties; i.e. Burkett and San Saba. Loss would have been much greater but for the fact of extreme short crop in southern portion of the state. All orchardists in the southern portion practicing sanitary and prophylactic methods of control under supervision of Federal pathologists.

Varieties immune -- Stuart, Teche
Varieties resistant -- Success, Frotsche
Varieties susceptible -- Moneymaker, Moore
Varieties very susceptible -- Schley, Pabst, Van Deman, Alley, Georgia.

(M. Hull, 1929)